

WHAT IS CLAIMED IS:

1. A cooling channel cover for a one-piece piston of an internal combustion engine, the piston having a closed cooling channel that runs around inside a piston crown, at the level of a piston ring band, and a ring-shaped recess provided between the piston ring band and the piston shaft, wherein the piston shaft is connected with the piston hubs suspended on the piston crown, the cooling channel comprising a one-piece, plastic ring having the following features:

a U-shaped cross-section;

radially angled outer and inner shanks
disposed around a circumference of the ring;

at least one film hinge running around the circumference of the ring, wherein the film hinge allows at least one radial deflection of at least one of the shanks, in such a manner that the shanks are adapted to engage in a stepped conical recess on an inner edge of the cooling channel in order to close off the cooling channel.

2. The cooling channel cover for according to claim 1, wherein the at least one film hinge is located on the radially outer or radially inner shank of the U-shaped ring, wherein the film hinge is formed by a weakening of material at an angle of the shanks from a ring bottom.

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3. The cooling channel cover according to claim 1, wherein slits that extend ^{close} to the ring bottom are made in the radially outer and radially inner shanks, said slits being non-uniformly distributed over the circumference, in order to produce a plurality of shanks having different ridge lengths.

4. The cooling channel cover according to claim 3, wherein the slits have a width of 2 to 3 mm and the ridge lengths are 15 to 20 mm.

5. The cooling channel cover according to claim 1, wherein the U-shaped ring is radially divided in such a way that a mouth width is formed, said mouth width forming a cooling oil inlet or a cooling oil outlet for the cooling channel.

6. The cooling channel cover according to claim 1, wherein the U-shaped ring is made of polyphenylene sulfide (PPS) or a polyimide (PI).

7. A one-piece piston of an internal combustion engine, comprising:

a piston crown:

a closed cooling channel that runs around
inside the piston crown, at the level of a piston ring band;

a piston shaft connected with the piston crown
via hubs suspended on the piston crown;

a ring-shaped recess provided between the
piston ring band and the piston shaft; and

a cooling channel cover comprising a one-
piece, plastic ring having the following features:

a U-shaped cross-section,
radially angled outer and inner shanks
around a circumference of the ring;

at least one film hinge running around
the circumference of the ring, wherein the film hinge allows
at least one radial deflection of at least one of the shanks,
in such a manner that in order to close off the cooling
channel, the shanks engage in a stepped conical recess on an
inner edge of the cooling channel.

8. The piston according to claim 7, wherein the
at least one film hinge is located on the radially outer or
radially inner shank of the U-shaped ring, and wherein the
film hinge is formed by a weakening of material at an angle
of the shanks from a ring bottom.

9. The piston according to claim 7, wherein the recesses form conically shaped walls in an axial piston direction, against which the radially outer and inner shanks rest, under slight bias, in an assembled state of the U-shaped ring.

10. The piston according to claim 7, wherein the outer shank is arranged on an outside circumference of the piston crown and is angled radially outward with respect to a crosswise axis of the piston, and wherein the inner shank is arranged on an inside circumference of the piston crown and is angled radially inward with respect to the crosswise axis of the piston.

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11. The piston according to claim 10, wherein slits that extend ^{close} to the ring bottom are made in the radially outer and radially inner shanks, said slits being non-uniformly distributed over the circumference of the ring, in order to produce a plurality of shanks having different ridge lengths.

12. The piston according to claim 11, wherein the slit has a width of 2 to 3 mm and the ridge lengths are 15 to 20 mm.

13. The piston according to claim 7, wherein the U-shaped ring is radially divided in such a way that a mouth width is formed, said mouth width forming a cooling oil inlet or a cooling oil outlet for the cooling channel.

14. The piston according to claim 7, wherein the U-shaped ring is made of polyphenylene sulfide (PPS) or a polyimide (PI). or a ^{Carbon} spring steel.

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